WHAT IS CLAIMED IS:

1. An organic silicate polymer having a flexible bridge unit in the network prepared by crosslinking reaction between the following components (a) and (b):

(a) organosilane of the formula $R^1{}_mR^2{}_nSiX_{4-m-n}$ (where each of R^1 and R^2 which may be the same or different, is a non-hydrolysable group selected from hydrogen, alkyl, fluorine-containing alkyl or aryl group; X is a hydrolysable group selected from halide, alkoxy or acyloxy; and m and n are integers of from 0 to 3 satisfying $0 \leq m+n \leq 3$) or a partially hydrolyzed condensate thereof;

(b) organic bridged silane of the formula $R^3{}_pY_{3-p}Si\text{-}M\text{-}SiR^4{}_qZ_{3-q}$ (where each of R^3 and R^4 which may be the same or different, is a non-hydrolysable group selected from hydrogen, alkyl, fluorine-containing alkyl, alkenyl or aryl; each of Y and Z which may be the same or different, is a hydrolysable group selected from halide, alkoxy or acyloxy; M is alkylene or arylene group; and p and q are integers of from 0 to 2) or a cyclic oligomer with organic bridge unit (Si-M-Si).

2. A process for preparing an organic silicate polymer having a flexible bridge unit in the network comprising the step of:

reacting the following component (a) with the following component (b) in an organic solvent after addition of water and catalyst:

(a) organosilane of the formula $R^1{}_mR^2{}_nSiX_{4-m-n}$ (where each of R^1 and R^2 which may be the same or different, is a non-hydrolysable group selected from

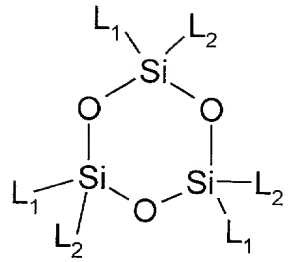
hydrogen, alkyl, fluorine-containing alkyl or aryl group; X is a hydrolysable group selected from halide, alkoxy or acyloxy; and m and n are integers of from 0 to 3 satisfying $0 \leq m+n \leq 3$) or a partially hydrolyzed condensate thereof;

(b) organic bridged silane of the formula $R^3_pY_{3-p}Si\text{-}M\text{-}SiR^4_qZ_{3-q}$ (where each of R^3 and R^4 which may be the same or different, is a non-hydrolysable group selected from hydrogen, alkyl, fluorine-containing alkyl, alkenyl or aryl; each of Y and Z which may be the same or different, is a hydrolysable group selected from halide, alkoxy or acyloxy; M is alkylene or arylene group; and p and q are integers of from 0 to 2) or a cyclic oligomer with organic bridge unit (Si-M-Si).

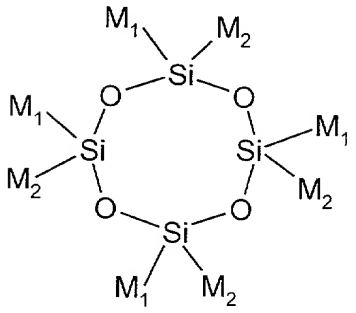
3. The process according to claim 2, wherein the partially hydrolyzed condensate of the organosilane is obtained by the reaction between the organosilane monomers or oligomers in an organic solvent after addition of water and a catalyst.

4. The process according to claim 2, wherein the organic bridged silane is synthesized by reacting a silane monomer containing a Si-H with a silane monomer containing aliphatic unsaturated carbon ($-CH=CH_2$) in the presence of a catalyst.

5. The process according to claim 2, wherein the cyclic oligomer with organic bridge unit (Si-M-Si) is synthesized by the hydrosilylation reaction of a oligomer of ring structure (I) and /or ring structure (II):



(I)



(II)

wherein L_1 is alkenyl or allyl, L_2 is hydrogen, alkyl or aryl, M_1 is alkenyl or allyl, and M_2 is hydrogen, alkyl or aryl.

6. The process according to claim 2, wherein the organic bridged silane is added in an amount of more than 5 parts by weight per 100 part by weight of the (a) organosilane.

7. The process according to claim 2, wherein the organic silicate polymer has a weight average molecular weight within a range of from 500 to 100,000.

8. An interlayer dielectric film for a semiconductor device comprising the organic silicate polymer of claim 1.

9. A semiconductor device comprising the interlayer dielectric film of claim 8.

10. A process for preparing an interlayer dielectric film for a semiconductor device comprising the steps of:

a) dissolving the organic silicate polymer of claim 1 in a solvent;

b) spin coating the dissolved solution obtained in step a) on a substrate to form a film;

c) drying the coating film obtained in step b);and

d) curing the dried film obtained in step c) at a temperature of 300 to 500 ℃:

11. A semiconductor device comprising the interlayer dielectric film prepared according to the process of claim 10.